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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,636	03/29/2001	Hiroyuki Ikeda	09792909-4795	5712

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EXAMINER

TRAN, THIEN F

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 03/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/821,636

Applicant(s)

IKEDA, HIROYUKI

Examiner

Thien Tran

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-38 is/are pending in the application.
- 4a) Of the above claim(s) 6-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

Art Unit: 2811

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recitation of the polysilicon semiconductor thin film constituting the channel without containing an impurity sets forth structure not supported by the specification. The specification clearly states the semiconductor thin film contains either p-type impurity or n-type impurity. Applicant is requested to point out exactly wherein the application that provides the support for the limitation as claimed above.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (USPN 5,808,595).

Kubota et al. discloses the claimed display apparatus comprising a plurality of thin film transistors, each of the thin film transistors (Fig. 1a) comprising a semiconductor thin film 12 constituting a channel 12a, a first gate electrode 16 on one side the semiconductor thin film and a second gate electrode 14 on an opposite side of the semiconductor thin film, wherein the semiconductor thin film inherently having a threshold voltage when voltages are applied to both first and second gate electrodes, and further comprising a means for adjusting the threshold voltage by applying a first threshold adjustment voltage (-20V) to the second gate electrode when the first gate electrode receives a first control voltage (0 V when the transistor is not selected or off state) and applying a second threshold adjustment voltage (-20V) to the second gate electrode when the first electrode receives a second control voltage (predetermined voltage when the transistor is selected or on state). The claim does not require the first threshold adjustment voltage to the second gate electrode 14 during off state to be different from the second threshold adjustment voltage to the second gate electrode 14 during on state. Therefore, Kubota's means for adjusting the threshold voltage reads on the means as claimed.

Regarding claim 2, Kubota et al. further discloses the semiconductor thin film 12 constituting the channel 12a made of polycrystalline silicon (col. 12, lines 25-27) and has a thickness 100nm (col. 13, lines 20-21). Kubota et al. further discloses some of the thin film transistors being p-channel transistors. It is a known fact that for p-channel transistors, the channel 12a is doped of n-type impurity which is either phosphorus or

Art Unit: 2811

arsenic. Therefore, the channel does not contain boron which is a p-type impurity that effectively affects the formation of a depletion layer.

Regarding claim 3, Kubota et al. further disclose n-channel transistors being turned into those of depletion type wherein the film thickness of the semiconductor thin film 12 is set to not more than two times the maximum thickness of the depletion layer (col. 13, lines 14-18). It is a known fact that for n-channel transistors, the channel 12a is doped of p-type impurity which is boron. Therefore, it is inherent that the semiconductor thin film 12 of the n-channel transistors contains an impurity effectively affecting the formation of a depletion layer.

### ***Response to Arguments***

Applicant's arguments filed 01-03-2003 have been fully considered but they are not persuasive. Claim 1 does not require the first threshold adjustment voltage applied to the second gate electrode is different from the second threshold adjustment voltage applied to the second gate electrode. Therefore, the means for adjusting the threshold voltage disclosed by Kubota reads on the claim.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

Art Unit: 2811

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thien Tran whose telephone number is (703) 308-4108. The examiner can normally be reached on 8:30AM - 5:00PM Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

tt  
March 18, 2003



Thien Tran  
Patent Examiner  
Technology Center 2800